## ***What I Claim Is:***

1. A laser machining system comprising:

a work-piece;

at least one light source that produces a laser light along a first axis, the laser light defining a first portion of laser light and a second portion of laser light, the second portion being radially inward relative to the first portion;

an optical element that reflects the first portion of laser light at an angle relative to the first axis so that the second portion of laser light passes through the optical element along the first axis; and

a first optical assembly that collimates the first portion of laser light into a first light beam of a first cross-sectional area onto the work-piece at a sufficient power density to machine the work-piece.

2. The laser machining system of claim 1, wherein the first and second portions comprise collimated light.

3. The laser machining system of claim 1, wherein the first portion comprises collimated light and the second portion comprises non-collimated light.

4. The laser machining system of claim 3, further comprising a second optical assembly that collimates the second portion of laser light into a second light beam having a second cross-sectional area onto the work-piece at a sufficient power density to machine the work-piece.

5. The laser machining system of claim 3, wherein a ratio of irradiance between the collimated light and the non-collimated light ranges from about 1:1 to about 0.1:1.

6. The laser machining system of claim 4, wherein a cross-sectional area of the second portion of the laser light comprises approximately one quarter the magnitude of a cross-sectional area of the first portion of the laser light.

7. The laser machining system of claim 1, wherein the laser light source comprises at least one of a gas or solid-state laser.

8. The laser machining system of claim 1, wherein the laser light source comprises at least one of a copper vapor laser and a frequency doubled Neodymium:Yttrium-Aluminum-Garnet (Nd:YAG) laser.

9. The laser machining system of claim 4, wherein the second cross-sectional area comprises a cross-sectional area substantially equal to the first-cross-sectional area.

10. The laser machining system of claim 1, wherein the optical element comprises a reflector having an opening and a reflector surface intersecting and oblique to the first axis so as to reflect the first portion of laser light at an angle relative to the first axis and the second portion of laser light passes through the opening.

11. The laser machining system of claim 10, wherein the reflector comprises a scraper reflector.

12. The laser machining system of claim 10, wherein the reflector comprises an aspherical reflective surface.

13. The laser machining system of claim 10, wherein the opening comprises a generally circular opening having a diameter between from approximately 20 microns to approximately 650 microns.

14. The laser machining system of claim 4, wherein the second optical assembly includes a redirecting assembly and a telescopic arrangement to redirect and collimate the second portion of the laser light into the second light beam toward the work-piece so that the second light beam is spaced apart relative to the first light beam.

15. The laser machining system of claim 4, wherein the second optical assembly includes a beam expander to expand the second portion of laser light into the second cross-sectional area substantially equal to the first cross-sectional area.

16. The laser machining system of claim 14, wherein the beam expander comprises a diverging lens.

17. The laser machining system of claim 1, further comprising a telescopic arrangement separate from the first and second optical assemblies to collimate the second portion of the laser light.

18. The laser machining system of claim 4, wherein at least one of the first and second optical assemblies includes a prism, a turning mirror and at least one focusing lens.

19. The laser machining system of claim 1, wherein the power densities of the first and second collimated beams is at least 1 Megawatt per centimeter squared.

20. The laser machining system of claim 4, wherein the first light beam is disposed for rotation about the first axis and the second light beam is disposed for rotation about a second axis spaced from and parallel to the first axis.

21. The laser machining system of claim 1, wherein the work-piece comprises a first orifice having a first taper and a first ellipticity and at least a second orifice having a second taper and a second ellipticity in the work piece, the first taper and the second taper having a variability therebetween of about plus-or-minus 10% and the first ellipticity and the second ellipticity having a variability therebetween of about plus-or-minus 10%.

22. A machining system comprising:

a work-piece;

a light source that produces substantially collimated light along a first axis, the light defining a first portion of light and a second portion of light, the second portion being radially inward relative to the first portion;

means for directing the first portion of the light at an angle relative to the first axis towards the light source and the second portion of light away from the light source along the first axis; and

means for collimating the first portion of light into a first light beam having a first cross-sectional area onto the work-piece at a sufficient first power density to machine the work-piece.

23. The machining system of claim 22, wherein the first portion of laser light comprises non-collimated light and wherein at least a portion of the second portion of laser light comprises collimated light such that the ratio of irradiance between the collimated light and the non-collimated light ranging from about 1:1 to about 0.1:1.

24. The machining system of claim 21, wherein the light source comprises at least one of a gas or solid-state laser and the plurality of light sources comprises at least one of a copper vapor laser and a frequency doubled Neodymium:Yttrium-Aluminum-Garnet (Nd:YAG) laser.

25. The machining system of claim 22, wherein the means for redirecting comprise an optical element having an opening and a reflector surface intersecting and oblique to the first axis such that the first portion of light is reflected at an angle relative to the first axis and the second portion of light passes through the opening.

26. The machining system of claim 25, wherein the optical element comprises a scraper reflector and the opening comprises a generally circular diameter between from 20 microns to approximately 650 microns.

27. The machining system of claim 26, wherein the means for collimating comprises a redirecting assembly, a telescopic arrangement and a beam expander to redirect and collimate the second portion of the laser light into a second light beam of a second cross-sectional area at a

sufficient second power density to machine the workpiece, and wherein each of the first and second power densities comprises at least 1 Megawatt per centimeter squared.

28. The machining system of claim 22, wherein the means for collimating comprise a prism, a turning mirror and at least one focusing lens.

29. The machining system of claim 27, wherein the first light beam is disposed for rotation about the first axis and the second light beam is disposed for rotation about a second axis spaced from and parallel to the first axis.